

Opportunity for Women in Renewable Energy Utilization in Bangladesh

By

Hasna J. Khan

Prokaushali Sangsad Ltd. Bangladesh

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Outline of Presentation

- **Background**
- **Women in energy service delivery**
- **Results after 10 months**
- **Future directions**
- **Lessons learnt**

Background

- Rural Electrification includes: Domestic, commercial, irrigation, and industry
- Un-electrified Domestic Households
 - are geographically dispersed
 - small energy users
 - very large in number
 - expensive to serve by conventional grid
 - often poor

Key Findings of Rural Electrification Survey (1998,1999)

- **10 Million Un-electrified Rural Households**
- **Shortage of available power**
- **Infrastructure is not ready today**

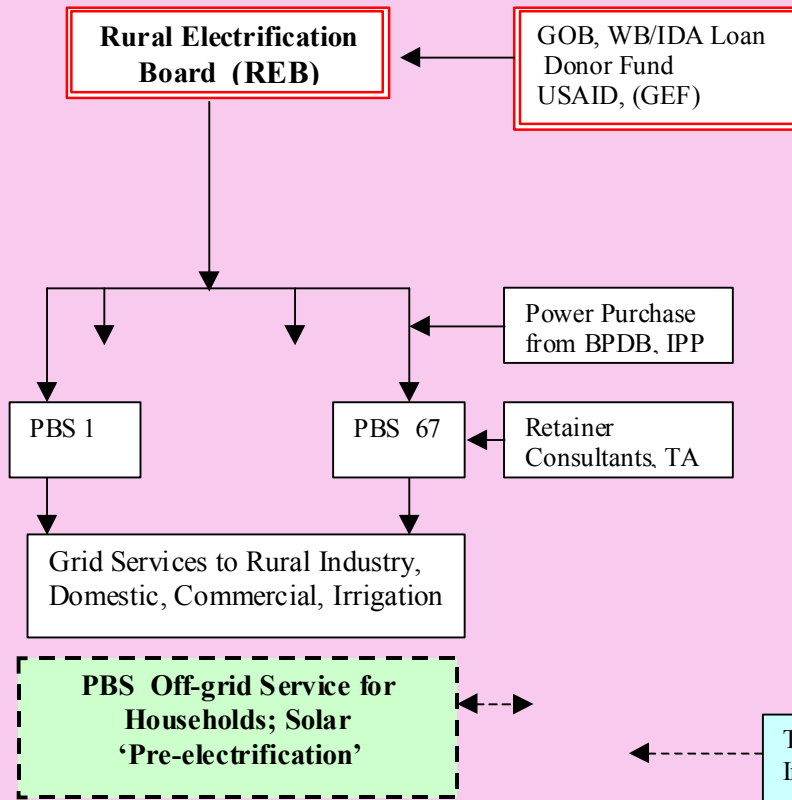
There is a Need for Innovative Solutions

Possible Solutions

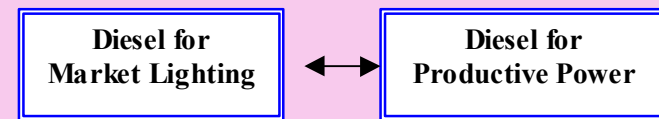
- Off-grid can Complement Grid Service for Household Electrification
- Women can be Energy Service Providers

RURAL ELECTRIFICATION SCENARIO IN BANGLADESH

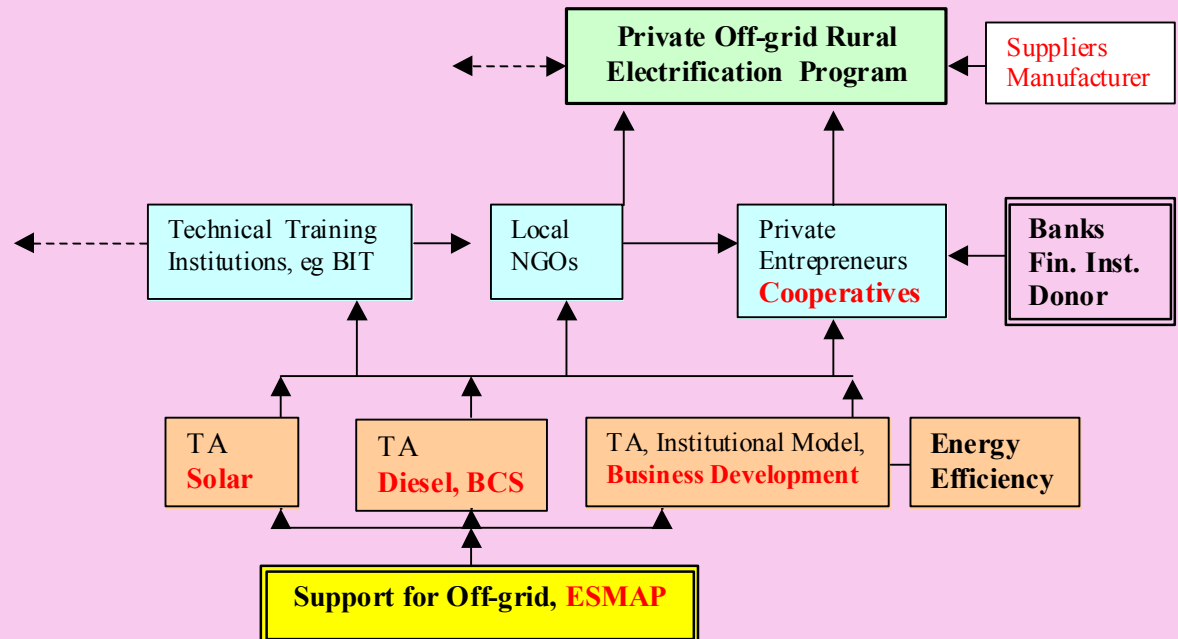
PUBLIC PROGRAM



ONGOING PRIVATE INITIATIVES



FUTURE PRIVATE INITIATIVES



Project Components

- **Women as Energy Service Provider**
 - with individual and collective economic benefit.
- **Professional Women in RET Utilization**
- **RET in Development Projects of the Public sector**

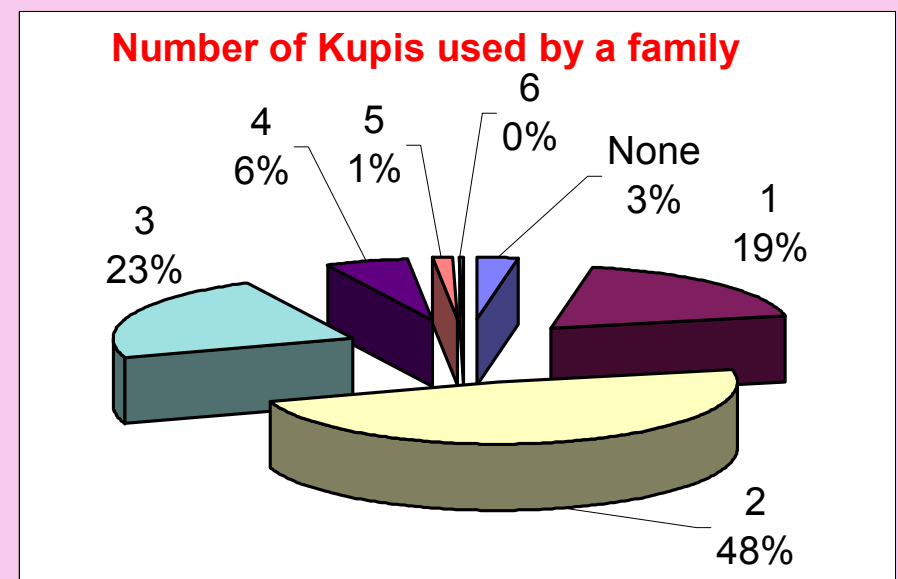
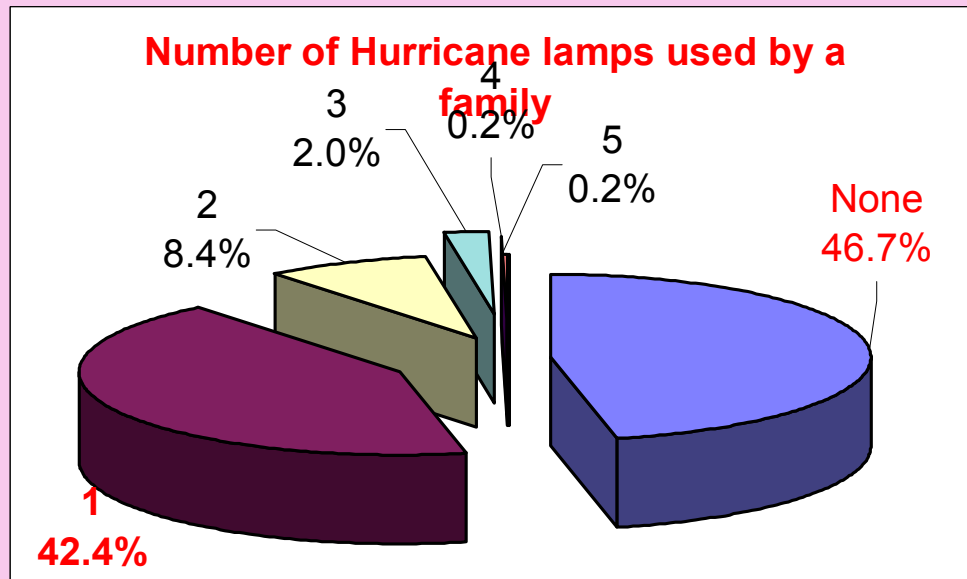
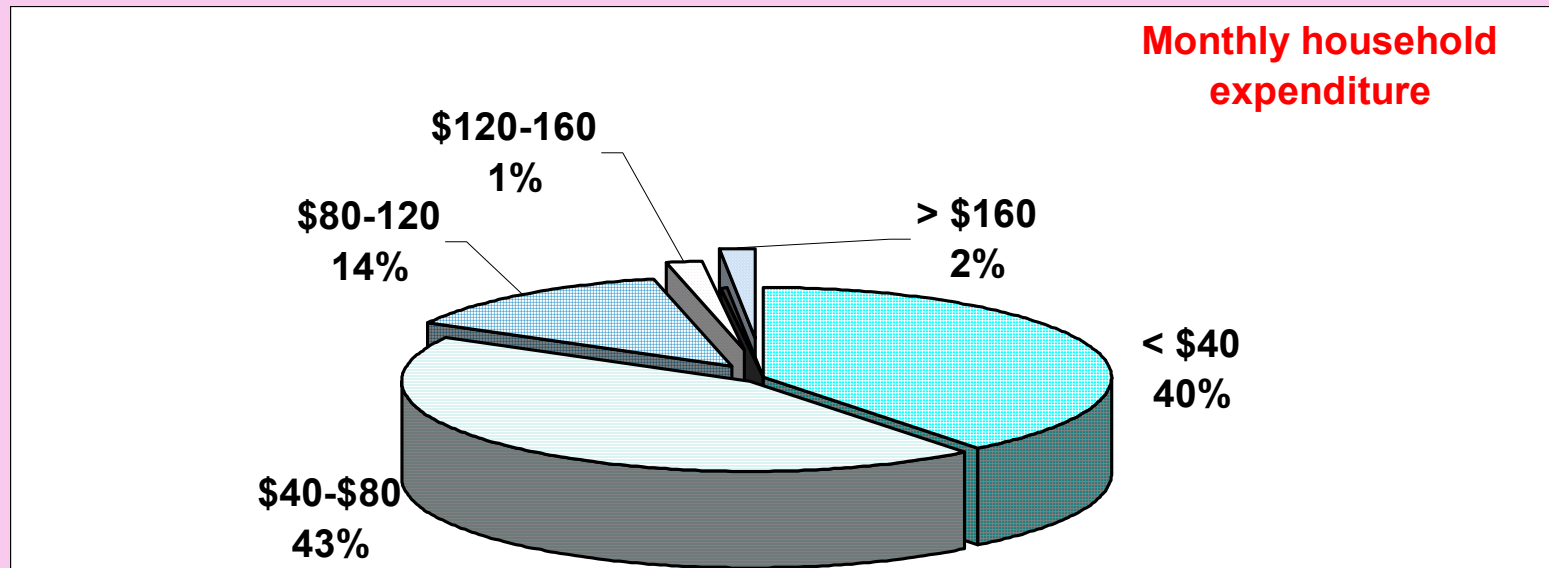
Women in energy service delivery

- Micro-enterprise of 33 women
- DC Lamp assembly for off-grid electrification
- Marketing and Sales of DC Lamps
- Diesel Battery Charging Station operation
- Battery Sale (Cash and Credit) and leasing
- Prepare for Solar electrification service

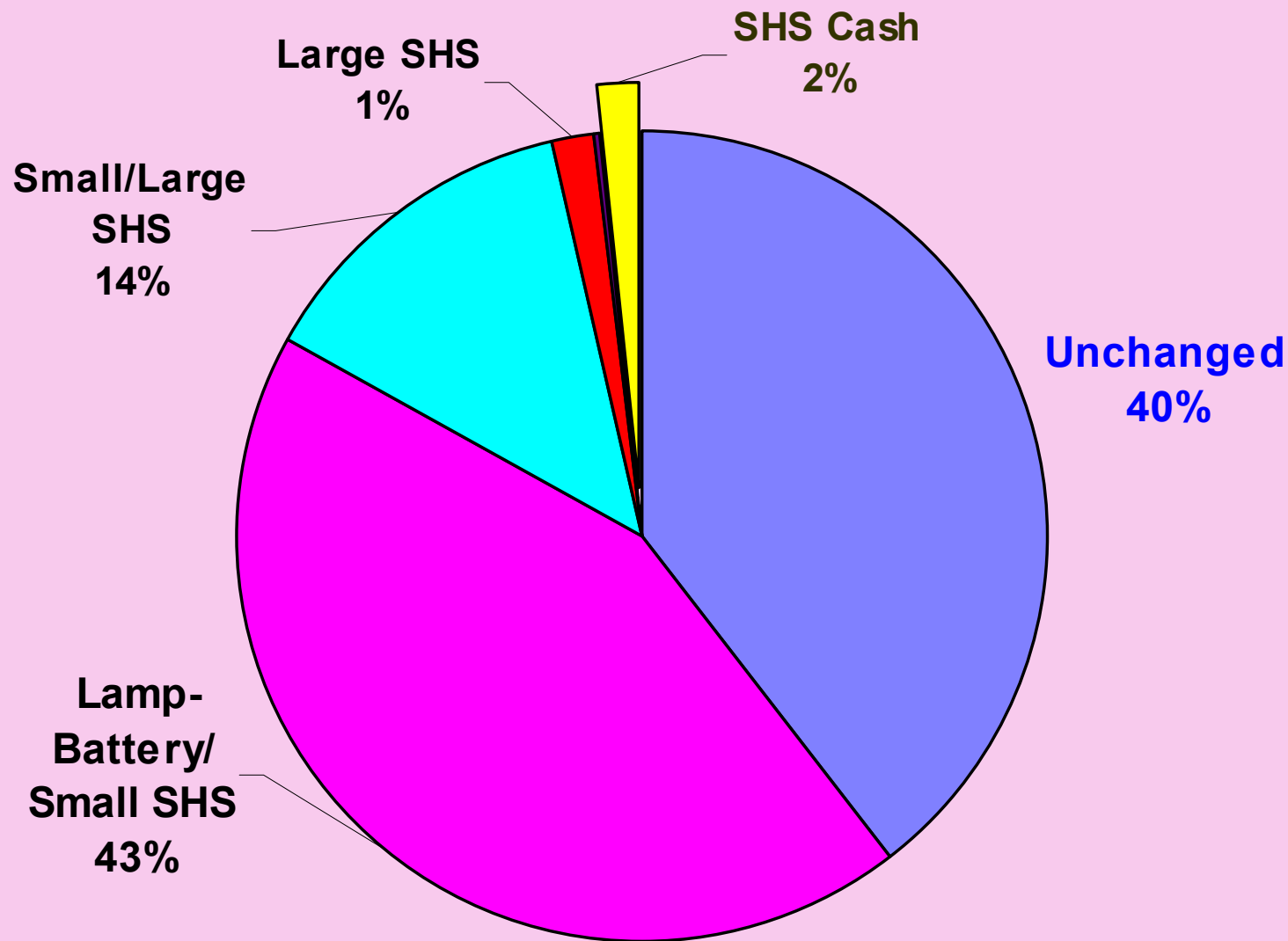
Women as energy service provider

- **Production Capacity 600 Lamps/month**
- **6W, 8W and 12W Lamps**
- **Sales of 8V and 12V Batteries, 20AH, 50,AH, 70AH**
- **Diesel BCS for 75 households**
 - **Production** **15 c/kWh**
 - **Sale** **20 c/kWh**
- **Investment for lighting from Lamp-Batt-Diesel**
 - **Provider** **\$22**
 - **User** **\$20 battery + \$6.5 lamp**
- **Investment cost per consumer for SHS Service**
 - **Provider** **\$200**
 - **User** **\$20 battery + 6.5 lamp**

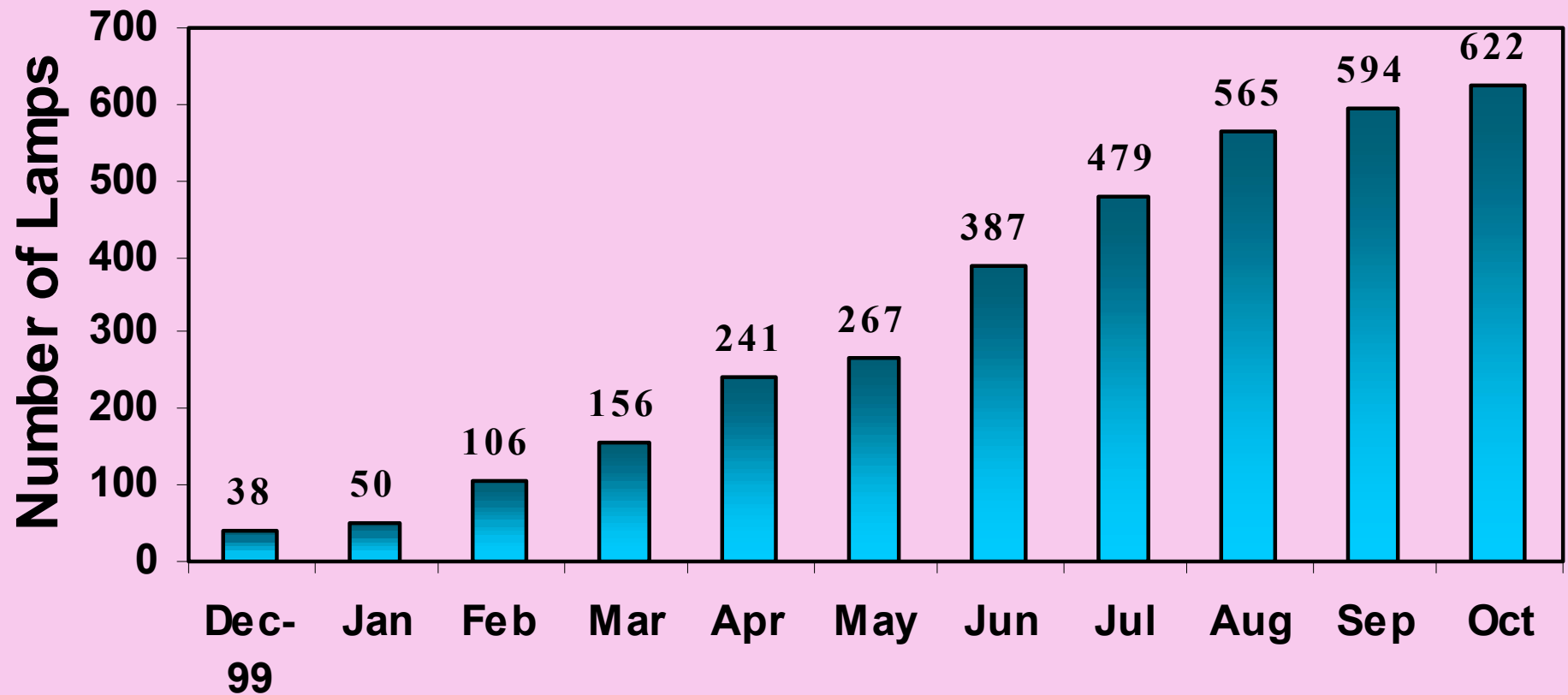
Who are the Potential Consumers of DC Lamps?



Market Characteristics- Ability to Pay

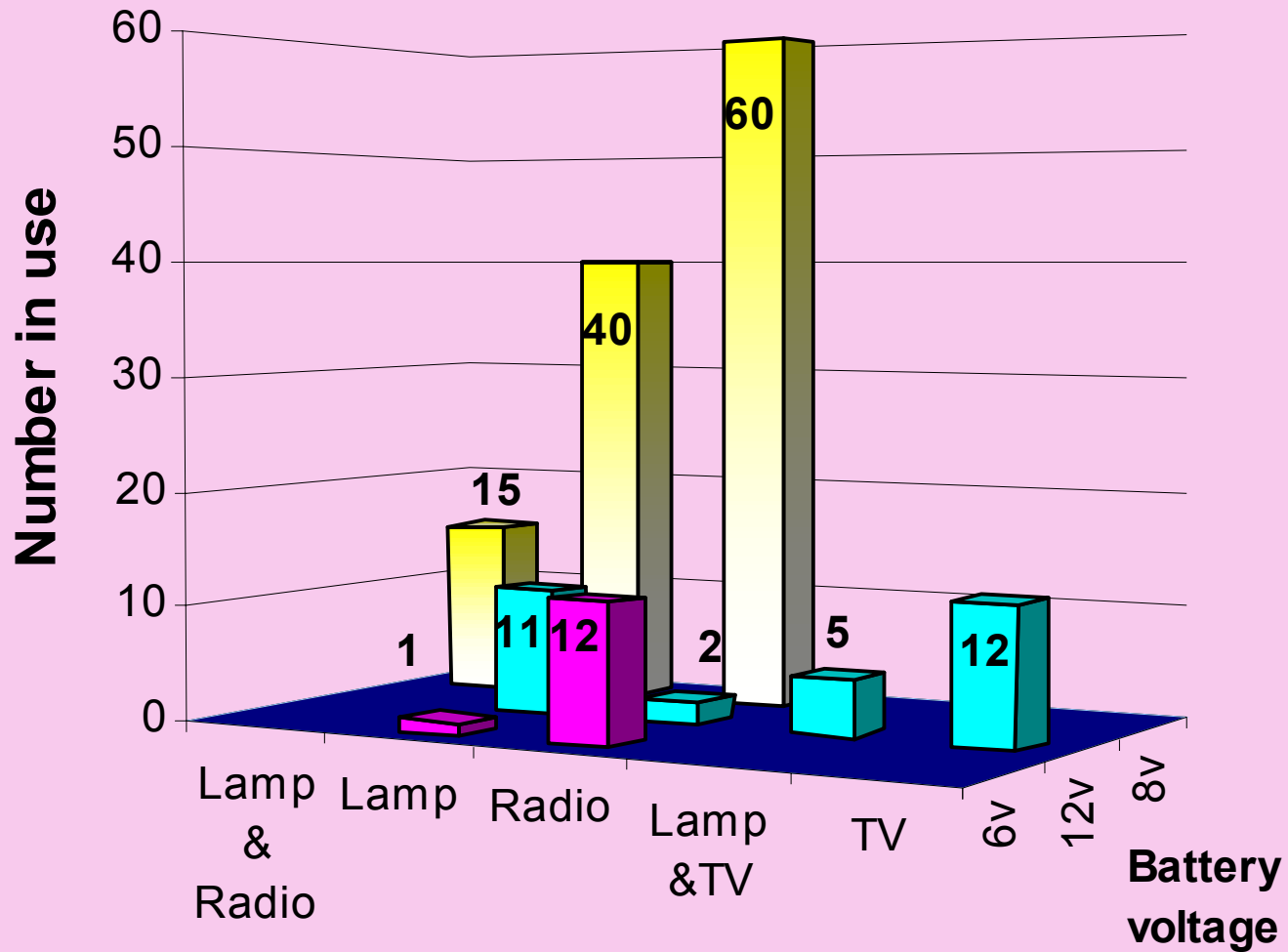


Cumulative Number of Lamps Sold

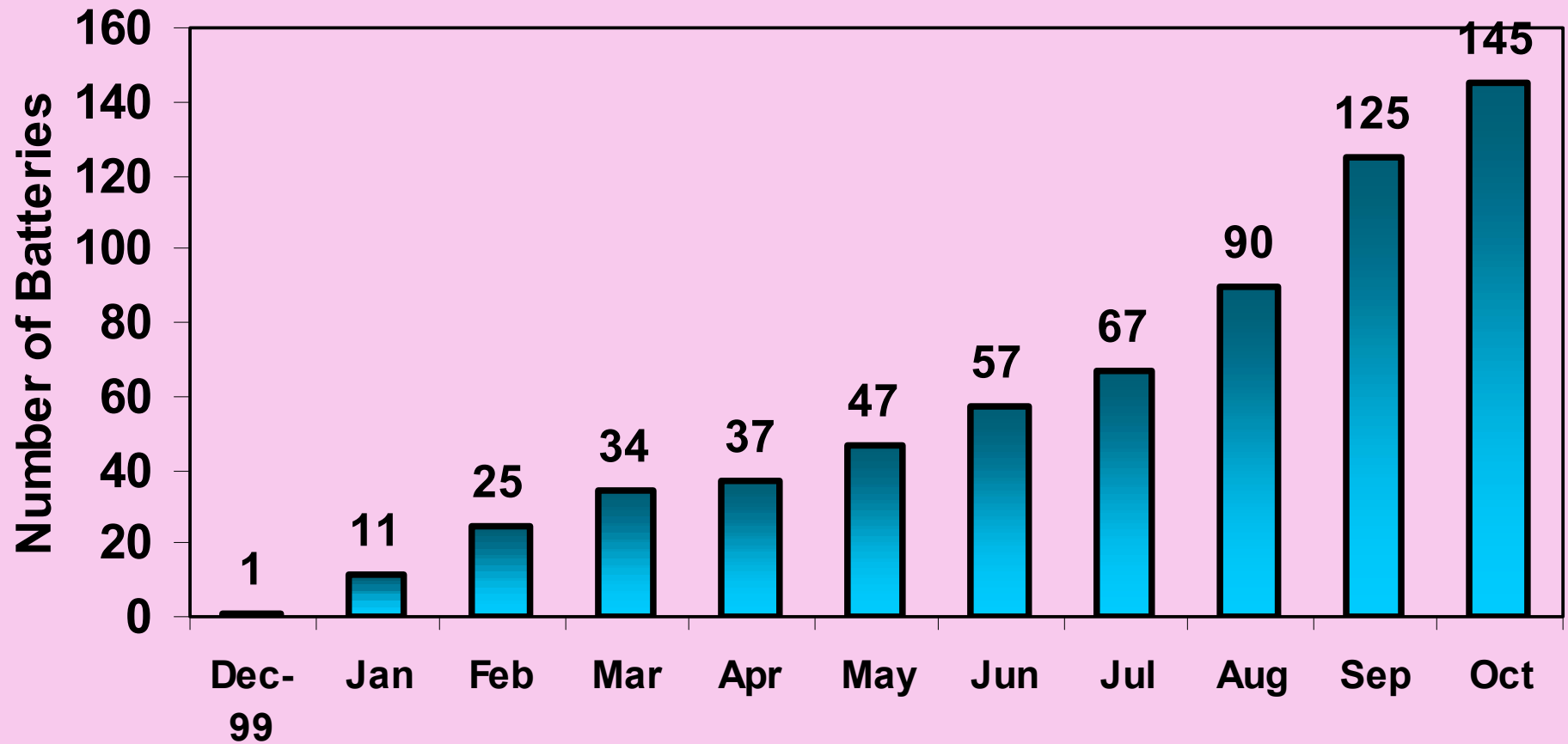


DC Appliances Used in the Project Area

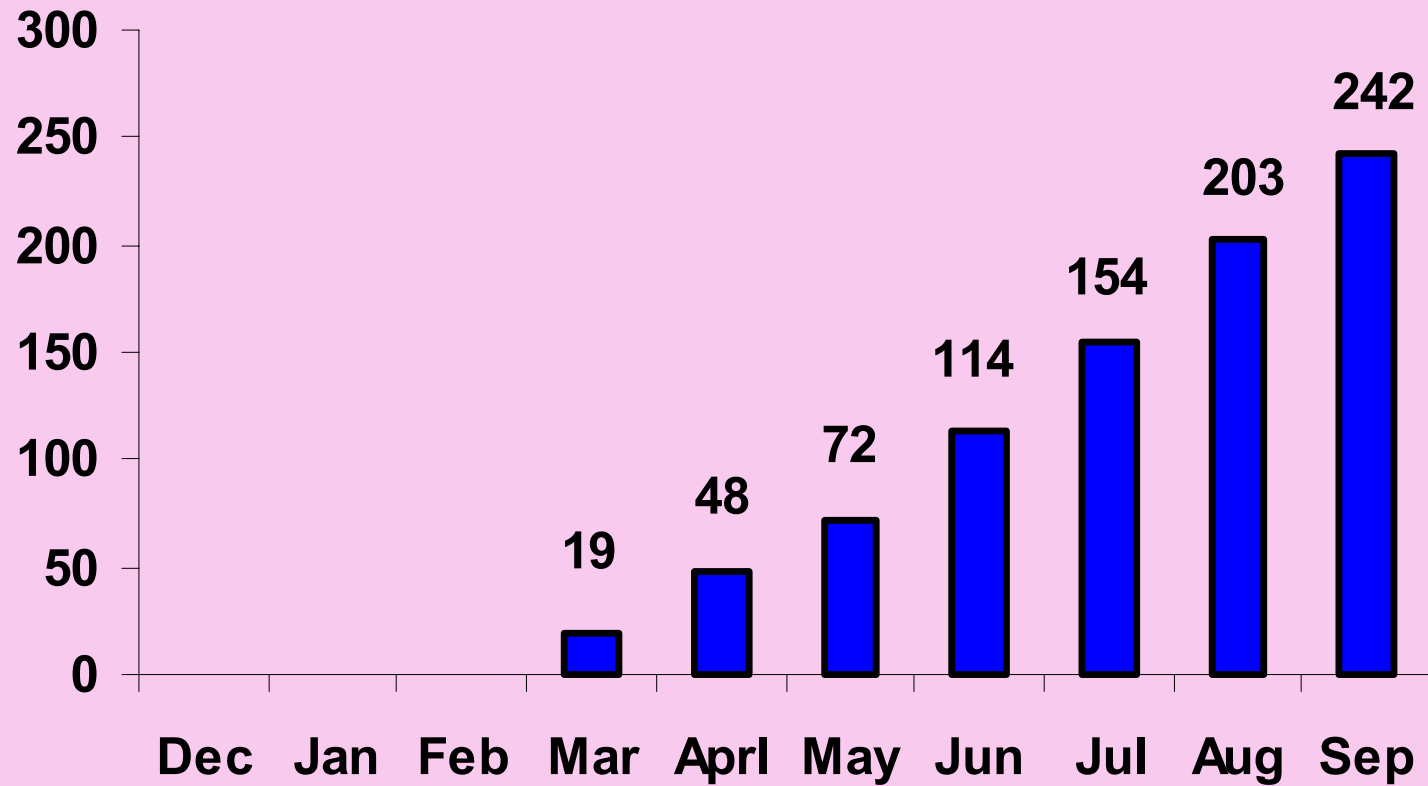
Sample size 120



Cumulative Number of Battery Sold



Cumulative Battery Lease from BCS



Future Direction of Micro-enterprise

- Innovative SHS Service Delivery and Scaling up

**Solar Panel with
Controller**

**Lease from
Micro-enterprise**



Battery

Credit Sale



DC Lamp

Cash Sale



Lessons Learnt

- Cooperative of rural women can be effective energy service provider
- Most suitable off-grid electrification service
 - <0.25 km cluster Diesel Micro-grid
 - <2 km from BCS Lamp-battery System
 - Isolated households Solar Home System
- Need long term low interest funds for SHS Service
- Ensure co-ordination between Co-operatives, entrepreneurs, NGOs & public service of PBSs